

Environmental Data for Each Production Base



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Environmental Data for Each Production Base (FY2023 results)



Air pollution

NOx: Nitrogen oxide, SOx: Sulfur oxide

| Equipment | Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|------------------------------------|---------------|------------------------|--|-----------------|-----------|
| | | | | Maximum | Average |
| Compact boiler (22 units) | Dust and soot | g/Nm ³ | 0.05 | 0.007 | 0.0006 |
| | NOx | ppm | 100 | 46 | 27 |
| | SOx | Nm ³ /h | 0.002 | 0 | 0 |
| Metal-heating furnace (17 units) | Dust and soot | g/Nm ³ | 0.05 | 0.016 | 0.007 |
| | NOx | ppm | 150 | 21 | 12 |
| | SOx | Nm ³ /h | 0.018 | 0 | 0 |
| Steel-heating furnace (9 units) | Dust and soot | g/Nm ³ | 0.05 | 0.003 | 0.0010 |
| | NOx | ppm | 150 | 7 | 3 |
| | SOx | Nm ³ /h | 0.026 | 0 | 0 |
| Aluminum-melting furnace (9 units) | Dust and soot | g/Nm ³ | 0.06 | 0.019 | 0.005 |
| | NOx | ppm | 150 | 43 | 9.81 |
| | SOx | Nm ³ /h | 0.019 | 0 | 0 |
| | Dioxin | ng-TEQ/Nm ³ | 5 | 0.52 | 0.12 |
| Drying kiln (1 unit) | Dust and soot | g/Nm ³ | 0.05 | 0.028 | 0.022 |
| | NOx | ppm | 56 | 24 | 22 |
| | SOx | Nm ³ /h | 0.0048 | 0 | 0 |
| Drying combustion furnace (1 unit) | Dioxin | ng-TEQ/Nm ³ | 5 | 0.0000063 | 0.0000063 |
| | Dioxin | ng-TEQ/Nm ³ | 5 | 0.0000044 | 0.0000044 |

Water quality

Figures shown in brackets () for the regulatory limit are daily averages

| Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|----------------------------------|----------|--|-----------------|---------|
| | | | Maximum | Average |
| Hydrogen ion concentration (pH) | — | 5.8 - 8.6 | 7.3 | 7.2 |
| Biochemical oxygen demand (BOD) | mg/L | 20 (15) | 8 | 5.5 |
| Chemical oxygen demand (COD) | mg/L | 20 (15) | 9.3 | 7.3 |
| Suspended solids (SS) | mg/L | 20 (10) | 1 | 1 |
| n-hexane extracts (mineral oils) | mg/L | 4 | 0 | 0 |
| Copper | mg/L | 0.1 | 0 | 0 |
| Zinc | mg/L | 1.0 | 0.09 | 0.07 |
| Coliform count | units/mL | 3,000 | 6 | 6 |
| Trichloroethylene | mg/L | 0.3 | 0 | 0 |
| Dichloromethane | mg/L | 0.02 | 0 | 0 |
| Boron | mg/L | 10 | 0.1 | 0.1 |
| Fluorine | mg/L | 15 | 0 | 0 |
| Ammoniacal nitrogen | mg/L | 100 | 1.7 | 1.4 |
| Nitrate-nitrogen | | | 2.6 | 2.6 |
| Nitrite-nitrogen | | | 2.84 | 1.605 |

Air pollution

NOx: Nitrogen oxide, SOx: Sulfur oxide

| Equipment | Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|---------------------------------|---------------|--------------------|--|-----------------|------------|
| | | | | Maximum | Average |
| Compact boiler (6 units) | Dust and soot | g/Nm ³ | 0.05 | 0.007 | 0.00116667 |
| | NOx | ppm | 100 | 92 | 76 |
| | SOx | Nm ³ /h | 0.01 | 0 | 0 |
| Metal-heating furnace (3 units) | Dust and soot | g/Nm ³ | 0.05 | 0.016 | 0.00525 |
| | NOx | ppm | 150 | 72 | 33 |
| | SOx | Nm ³ /h | 0.01 | 0 | 0 |

Water quality

Figures shown in brackets () for the regulatory limit are daily averages

| Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|----------------------------------|----------|--|-----------------|---------|
| | | | Maximum | Average |
| Hydrogen ion concentration (pH) | — | 5.8 - 8.6 | 7.4 | 7.3 |
| Biochemical oxygen demand (BOD) | mg/L | 20 (15) | 3 | 2.5 |
| Chemical oxygen demand (COD) | mg/L | 20 (15) | 2.6 | 1.9 |
| Suspended solids (SS) | mg/L | 20 (15) | 0 | 0 |
| n-hexane extracts (mineral oils) | mg/L | 5 | 0 | 0 |
| Phenols | mg/L | 5 | 0 | 0 |
| Copper | mg/L | 3 | 0 | 0 |
| Zinc | mg/L | 2 | 0.18 | 0.18 |
| Soluble iron | mg/L | 10 | 0 | 0 |
| Soluble manganese | mg/L | 10 | 0 | 0 |
| Chromium | mg/L | 2 | 0 | 0 |
| Coliform count | units/mL | 3,000 | 0 | 0.0 |
| 1, 1, 1-trichloroethane | mg/L | 0.001 | 0.001 | 0 |
| Boron | mg/L | 10 | 0 | 0 |
| Ammoniacal nitrogen | mg/L | | 0.4 | 0.40 |
| Nitrate-nitrogen | | | 0 | 0 |
| Nitrite-nitrogen | | | 0.02 | 0 |

Air pollution

NOx: Nitrogen oxide, SOx: Sulfur oxide

| Equipment | Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|--------------------------|---------------|--------------------|--|-----------------|---------|
| | | | | Maximum | Average |
| Compact boiler (2 units) | Dust and soot | g/Nm ³ | 0.05 | 0 | 0.0000 |
| | NOx | ppm | 100 | 60 | 60 |
| | SOx | Nm ³ /h | 0.01 | 0 | 0 |

Water quality

Figures shown in brackets () for the regulatory limit are daily averages

| Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|----------------------------------|----------|--|-----------------|------------|
| | | | Maximum | Average |
| Hydrogen ion concentration (pH) | — | 5.8 - 8.6 | 7.4 | 7.2 |
| Biochemical oxygen demand (BOD) | mg/L | 20 (15) | 10 | 4.9 |
| Chemical oxygen demand (COD) | mg/L | 80 (60) | 14.2 | 9.9 |
| Suspended solids (SS) | mg/L | 20 (10) | 4 | 1.3 |
| n-hexane extracts (mineral oils) | mg/L | 3 | 0 | 0 |
| Phenols | mg/L | 2.5 | 0 | 0 |
| Copper | mg/L | 0.5 | 0 | 0 |
| Zinc | mg/L | 2 | 0.19 | 0.17 |
| Soluble iron | mg/L | 5 | 0.76 | 0.45 |
| Soluble manganese | mg/L | 5 | 0 | 0 |
| Chromium | mg/L | 1 | 0 | 0 |
| Coliform count | units/mL | 3,000 | 125 | 25.5 |
| Cadmium | mg/L | 0.03 | 0 | 0 |
| Cyanide | mg/L | 0.5 | 0 | 0 |
| Organic phosphorus | mg/L | 1 | 0 | 0 |
| Lead | mg/L | 0.1 | 0 | 0 |
| Hexavalent chromium | mg/L | 0.25 | 0 | 0 |
| Arsenic | mg/L | 0.1 | 0 | 0 |
| Total mercury | mg/L | 0.0005 | 0 | 0 |
| Alkyl mercury | mg/L | Undetected | Undetected | Undetected |
| PCB | mg/L | 0.001 | 0 | 0 |
| Trichloroethylene | mg/L | 0.1 | 0 | 0 |
| Tetrachloroethylene | mg/L | 0.05 | 0 | 0 |
| Carbon tetrachloride | mg/L | 0.01 | 0 | 0 |
| 1, 1, 1-trichloroethane | mg/L | 1 | 0 | 0 |
| Boron | mg/L | 10 | 0 | 0 |
| Ammoniacal nitrogen | mg/L | 100 | 9.6 | 6.05 |
| Nitrate-nitrogen | | | | |
| Nitrite-nitrogen | | | | |

Environmental Data for Each Production Base



Air pollution

NOx: Nitrogen oxide, SOx: Sulfur oxide

| Equipment | Item | Unit | Regulatory limit (including exceptions) | FY2021 | | FY2022 | |
|--------------------------------|---------------|--------------------|---|-----------------|---------|-----------------|---------|
| | | | | Measured values | | Measured values | |
| | | | | Maximum | Average | Maximum | Average |
| Compact boiler | Dust and soot | g/Nm ³ | 0.1 | ND | ND | ND | ND |
| | NOx | ppm | 150 | 51 | 41 | 50 | 37 |
| | SOx | Nm ³ /h | 0.00 | ND | ND | ND | ND |
| Continuous carburizing furnace | Dust and soot | g/Nm ³ | 0.1 | ND | ND | ND | ND |
| | NOx | ppm | 150 | 63 | 43 | 66 | 67 |
| | SOx | Nm ³ /h | 5.00 | ND | ND | ND | ND |

Water quality

Figures shown in brackets () for the regulatory limit are daily averages

| Item | Unit | Regulatory limit (including exceptions) | FY2021 | | FY2022 | |
|----------------------------------|----------|---|-----------------|------------|-----------------|------------|
| | | | Measured values | | Measured values | |
| | | | Maximum | Average | Maximum | Average |
| Hydrogen ion concentration (pH) | — | 5.8 - 8.6 | 7.5 | 7.4 | 7.5 | 7.2 |
| Biochemical oxygen demand (BOD) | mg/L | 20 (10) | 2 | 1.5 | 3 | 1.3 |
| Chemical oxygen demand (COD) | mg/L | 30 (20) | 1.1 | 0.8 | 2.9 | 1.3 |
| Suspended solids (SS) | mg/L | 30 (20) | 0.8 | 0.5 | 3.8 | 0.8 |
| n-hexane extracts (mineral oils) | mg/L | 2.5 | Undetected | Undetected | Undetected | Undetected |
| Phenols | mg/L | 0.5 | Undetected | Undetected | Undetected | Undetected |
| Copper | mg/L | 1.5 | Undetected | Undetected | Undetected | Undetected |
| Zinc | mg/L | 2.5 | Undetected | Undetected | Undetected | Undetected |
| Soluble iron | mg/L | 5 | Undetected | Undetected | Undetected | Undetected |
| Soluble manganese | mg/L | 5 | Undetected | Undetected | Undetected | Undetected |
| Chromium | mg/L | 1 | Undetected | Undetected | Undetected | Undetected |
| Coliform count | units/mL | 1,500 | Undetected | Undetected | Undetected | Undetected |
| Nitrogen | mg/L | 16 (12) | 9.6 | 9.2 | 9.6 | 7.6 |
| Nickel | mg/L | 1 | Undetected | Undetected | Undetected | Undetected |
| Phosphorus | mg/L | 1(0.5) | Undetected | Undetected | Undetected | Undetected |
| Boron | mg/L | 10 | 0 | 0 | 0 | 0 |
| Fluorine | mg/L | 7.5 | 0 | 0 | 0 | 0 |

Environmental Data for Each Production Base



Air pollution NOx: Nitrogen oxide

| Equipment | Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|--------------------------|---------------|-------|---|-----------------|---------|
| | | | | Maximum | Average |
| Metal-heating furnace | Dust and soot | g/Nm³ | 1,022.5 | 0.32 | 0.05 |
| | NOx | ppm | — | — | — |
| Aluminum-melting furnace | Dust and soot | g/Nm³ | — | 0.14 | 0.14 |
| | NOx | ppm | 375.0 | 136.44 | 106.42 |
| Metal-heating furnace | Dust and soot | g/Nm³ | 1,113.8 | 0.25 | 0.1 |
| | NOx | ppm | — | — | — |

Water quality

| Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|----------------------------------|------|---|-----------------|---------|
| | | | Maximum | Average |
| Hydrogen ion concentration (pH) | — | 5–10 | 7.8 | 7.2 |
| Biochemical oxygen demand (BOD) | mg/L | 150 | 71.5 | 48.3 |
| Chemical oxygen demand (COD) | mg/L | 320 | 107.1 | 73.2 |
| Suspended solids (SS) | mg/L | 150 | 45.2 | 17.2 |
| n-hexane extracts (mineral oils) | mg/L | 15 | 15.9 | 10.6 |
| Phenols | mg/L | n/a | — | — |
| Copper | mg/L | 4 | 2.2 | 1.7 |
| Zinc | mg/L | 10 | 5.5 | 4.2 |



Air pollution TSP: Total suspended particulates

| Equipment | Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|---------------------|-------------------------|-------|---|-----------------|---------|
| | | | | Maximum | Average |
| Heat treatment line | TSP | mg/m³ | 120 | 2.4 | 2.11 |
| | Nonmethane hydrocarbons | mg/m³ | 120 | 5.8 | 3.52 |

Water quality

| Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|----------------------------------|------|---|-----------------|---------|
| | | | Maximum | Average |
| Hydrogen ion concentration (pH) | — | 6.0–9.0 | 7.0 | 7.0 |
| Biochemical oxygen demand (BOD) | mg/L | 300 | 55.0 | 35.9 |
| Chemical oxygen demand (COD) | mg/L | 500 | 155.0 | 103.0 |
| Suspended solids (SS) | mg/L | 400 | 51.0 | 41.0 |
| n-hexane extracts (mineral oils) | mg/L | 20 | 0.2 | ND |



Air pollution TSP: Total suspended particulates

| Equipment | Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|-------------------------------------|------|-------|---|-----------------|---------|
| | | | | Maximum | Average |
| Vacuum carburizing furnace VF No. 1 | TSP | mg/m³ | 400.0 | 20.26 | — |
| Vacuum carburizing furnace VF No. 2 | TSP | mg/m³ | 400.0 | 38.14 | — |

Water quality

| Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|----------------------------------|------|---|-----------------|---------|
| | | | Maximum | Average |
| Hydrogen ion concentration (pH) | — | 5.5–9.0 | 7.58 | — |
| Biochemical oxygen demand (BOD) | mg/L | 500 | 26.8 | — |
| Chemical oxygen demand (COD) | mg/L | 750 | 119 | — |
| Suspended solids (SS) | mg/L | 200 | 15.6 | — |
| n-hexane extracts (mineral oils) | mg/L | 10 | 3.20 | — |

Air pollution TSP: Total suspended particulates

| Equipment | Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|---------------------|-------------------------|-------|---|-----------------|---------|
| | | | | Maximum | Average |
| Heat treatment line | TSP | mg/m³ | 120 | 2.1 | 1.8 |
| | Nonmethane hydrocarbons | mg/m³ | 60 | 55.2 | 38.5 |
| Machining line | TSP | mg/m³ | 120 | 2.1 | 1.9 |
| | Nonmethane hydrocarbons | mg/m³ | 60 | 2.6 | 1.3 |

Water quality

| Item | Unit | Regulatory limit (including exceptions) | Measured values | |
|----------------------------------|------|---|-----------------|---------|
| | | | Maximum | Average |
| Hydrogen ion concentration (pH) | — | 6.0–9.0 | 7.4 | 7.1 |
| Biochemical oxygen demand (BOD) | mg/L | 300 | 68.4 | 53.8 |
| Chemical oxygen demand (COD) | mg/L | 500 | 463 | 306.0 |
| Suspended solids (SS) | mg/L | 400 | 108 | 46.9 |
| n-hexane extracts (mineral oils) | mg/L | 100 | 53 | 10.2 |